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The treatment of intracerebral aneurysms was transformed by the advent of endovascular stent-assisted coil placement. This technique has been mainly limited to adult patients due to the rarity of pediatric aneurysms and the uncertainty of the long-term outcomes. To our knowledge, the use of a Cordis® Enterprise stent assisted coiling to treat an aneurysm in an infant patient has yet to be described. This case report details the procedure and anesthetic implications of a stent assisted coiling in an 11-month old patient who presented with a dissecting dysplastic MCA aneurysm.

We present the case of an 11-month old 9.5kg twin male with a history of progressive episodes of symptomatic transient ischemic attacks, with decreased movement of left upper and lower extremities. He was found to have a dissecting dysplastic aneurysm of the right MCA on CT angiogram. The neurosurgeons evaluated the patient and did not see open surgery or embolization as viable options. Given that this procedure is extremely rare in a patient this age and there is no standard medical tool to perform the coiling, off-label use of the Cordis® Enterprise stent device was performed under general anesthesia. The patient was started on aspirin and clopidogrel before arriving at the angiography suite at UCSD. A smooth intravenous induction occurred ensuring hemodynamic stability during endotracheal intubation. Additional peripheral access was obtained and anesthesia was maintained with propofol, sevoflurane and rocuronium for paralysis. Blood, as well as vasoactive drugs were ready, in case massive blood loss or deliberate manipulation of blood pressure was required. After femoral arterial access was obtained and heparin given, a 4.5mm Enterprise stent was deployed in the proximal M1 segment of the MCA with extension into the superior M2 segment and multiple coils were deployed into the dysplastic areas of the artery. The femoral sheath was removed. The patient moved all four extremities and had intact pupillary reflexes. He was then re-sedated to allow hemostasis at the femoral artery site. He remained neurologically intact upon awakening.

Management of pediatric patients undergoing stent-assisted coiling of aneurysms is challenging. Endovascular treatment may be performed in angiography suites distant from pediatric neurosurgeons. Access to the patient by the anesthesiologist is limited. Strict blood pressure control allows stable transmural pressures, reducing the risk of rupture. An arterial line aids in this management during periods of stimulation, such as intubation, but pre-operative placement is impractical in infants. Baseline pressure should be maintained, but deliberate hypo or hypertension may be required during stent placement. Also, paralysis is of utmost importance as any movement could result in aneurysm rupture. If rupture were to occur, massive transfusion can be lifesaving. Finally, neurologic examination immediately post-procedure is the best means to detect new neurologic compromise, yet the patient also must remain motionless for six hours after sheath removal. We obtained an immediate neurologic exam upon extubation and re-sedated the patient without consequence.

Young WL et al. Anesthesia for Endovascular Neurosurgery. Anes Clin 2012.

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